

(19)



Europäisches Patentamt

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(11)

EP 1 048 264 A1

(12)

## EUROPEAN PATENT APPLICATION

(43) Date of publication:

02.11.2000 Bulletin 2000/44

(51) Int. Cl.<sup>7</sup>: A61B 5/00

(21) Application number: 00107927.6

(22) Date of filing: 14.04.2000

(84) Designated Contracting States:

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: 30.04.1999 US 302593

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### (54) Closed loop medicament pump

(57) A device to determine the level of a substance of interest in a patient's body and provide a therapeutic amount of medicament is disclosed. The level of a substance of interest in the patient's body is determined by iontopheretically sampling the patient's blood and then analyzing the resulting sample to determine the level of the substance of interest. The information about the level of a substance of interest is transmitted to an implanted drug pump 20 in the patient's body. In the preferred embodiment, the substance of interest sensor 12 is an external sensor applied to the user's skin. In an alternative embodiment, the sensor may be implanted. The preferred method of transmitting information about the level of a substance of interest determined by the sensor is transmitted to an implanted drug pump in the patient's body via a so called "body bus". The "body bus" is a telemetry system where the patient's own body provides the interconnection between the iontopheretic device and the implanted drug pump.

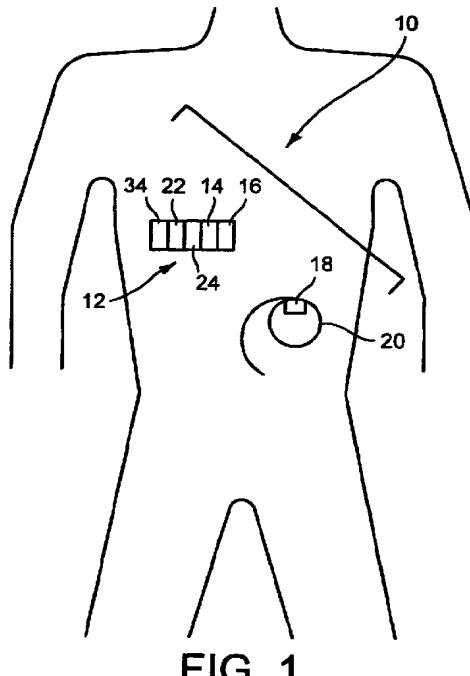


FIG. 1





























